

SEQUENCE LISTING

<110> Bartha, Gabor
Walker, Michael

<120>
METHODS FOR ANALYZING GENE EXPRESSION PATTERNS

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<151> 2000-11-01

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Glu Met Phe Arg Thr Cys Gln Phe Cys Pro Gln Phe Arg Glu Ile Ile
50 55 60
His Lys Ala Leu Ile Asp Arg Asn Ile Gln Ala Thr Leu Glu Ser Gln
65 70 75 80
Lys Lys Leu Asn Trp Cys Arg Glu Val Arg Lys Leu Val Ala Leu Lys
85 90 95
Thr Asn Gly Asp Gly Asn Cys Leu Met His Ala Thr Ser Gln Tyr Met
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Trp Gly Val Gln Asp Thr Asp Leu Val Leu Arg Lys Ala Leu Phe Ser
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145 150 155 160
Thr Arg Asn Trp Asn Asp Glu Trp Asp Asn Leu Ile Lys Met Ala Ser
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Glu Ile His Ile Phe Val Leu Cys Asn Ile Leu Arg Arg Pro Ile Ile
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Val Ile Ser Asp Lys Met Leu Arg Ser Leu Glu Ser Gly Ser Asn Phe
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Val Pro Leu Val Asn Arg Asp Arg Gly Arg Phe Glu Asp Leu Lys Val
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Glu Tyr Leu Met Val Ile Glu Ile Pro Val Gln Gly Trp Asp His Gly
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Thr Thr His Leu Ile Asn Ala Ala Lys Leu Asp Glu Ala Asn Leu Pro
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Tyr Lys Lys Trp Gln Glu Asn Ser Glu Gln Gly Arg Arg Glu Gly His
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<221> misc_feature

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<223> n = A,T,C or G

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Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn
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 Lys Asp Ala Asp Gly Asp Thr Phe Leu His Ile Ala Val Ala Gln Gly
 165 170 175
 Arg Arg Ala Leu Ser Tyr Val Leu Ala Arg Lys Met Asn Ala Leu His
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 Met Leu Asp Ile Lys Glu His Asn Gly Gln Ser Ala Phe Gln Val Ala
 195 200 205
 Val Ala Ala Asn Gln His Leu Ile Val Gln Asp Leu Val Asn Ile Gly
 210 215 220
 Ala Gln Val Asn Thr Thr Asp Cys Trp Gly Arg Thr Pro Leu His Val
 225 230 235 240
 Cys Ala Glu Lys Gly His Ser Gln Val Leu Gln Ala Ile Gln Lys Gly
 245 250 255
 Ala Val Gly Ser Asn Gln Phe Val Asp Leu Glu Ala Thr Asn Tyr Asp
 260 265 270
 Gly Leu Thr Pro Leu His Cys Ala Val Ile Ala His Asn Ala Val Val
 275 280 285
 His Glu Leu Gln Arg Asn Gln Gln Pro His Ser Pro Glu Val Gln Glu
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 Leu Leu Leu Lys Asn Lys Ser Leu Val Asp Thr Ile Lys Cys Leu Ile
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 Gln Met Gly Ala Ala Val Glu Ala Lys Ala Tyr Asn Gly Asn Thr Ala
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 aagaatgggc ggaaagcttg cctcaatcct gcatccccc tagttaagaa aatcatcgaa 360
 aagatgctga acagtgcaca atccaactga ccagaaggga ggaggaagct cactggtggc 420
 tgttcctgaa ggaggccctg cccttatagg aacagaagag gaaagagaga cacagctgca 480
 gaggccacct ggattgtgcc taatgtgttt gagcatcgct taggagaagt cttctattta 540
 tttatttatt cattagtttt gaagattcta tgtaaatatt ttaggtgtaa aataattaag 600
 ggtatgatta actctacctg cacactgtcc tattatatc attctttttg aaatgtcaac 660


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cccaagtttag ttcaatctgg attcatatatt aatttgaagg tagaatgttt tcaaattgttc 720
tccagtcatt atgttaatat ttctgaggag cctgcaacat gccagccact gtgatagagg 780
ctggcggatc caagcaaattg gccaatgaga tcattgtgaa ggcaggggaa tgtatgtgca 840
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tgtgtgggtca acattttctca tgttgaaact ttaagaacta aaatgttcta aatatccctt 960
ggacatttta tgtcttttctt gtaaggcata ctgccttggt taatggtagt tttacagtgt 1020
ttctggctta gaacaaaggg gcttaattat tgatggtt 1057

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<210> 10
<211> 107
<212> PRT
<213> Human

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<400> 10
Met Ala Arg Ala Ala Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu
1          5          10          15
Arg Val Ala Leu Leu Leu Leu Leu Val Ala Ala Gly Arg Arg Ala
          20          25          30
Ala Gly Ala Ser Val Ala Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr
          35          40          45
Leu Gln Gly Ile His Pro Lys Asn Ile Gln Ser Val Asn Val Lys Ser
          50          55          60
Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn
65          70          75          80
Gly Arg Lys Ala Cys Leu Asn Pro Ala Ser Pro Ile Val Lys Lys Ile
          85          90          95
Ile Glu Lys Met Leu Asn Ser Asp Lys Ser Asn
          100          105

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<210> 11
<211> 794
<212> DNA
<213> Human

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<220>
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<222> 7, 14, 22, 35, 37
<223> n = A,T,C or G

```

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<221> misc_feature
<222> 7, 14, 22, 35, 37
<223> n = A,T,C or G

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agggtgagcca gctcaagact ttgctctcca ccaggcagaa gatgacagac tgtgaatttg 120
gatatatatta caggettggt caggactatc tgcagtgcgt cctacagata ccacaacctg 180
gatcagggtcc aagcaaaaacg tccagagtgc taaaaaatgt tgcgtttctca gtccaaaaaag 240
aagtggaaaaa gaatctgaag tcatgcttgg acaatgttaa tgttgtgtcc gtagacactg 300
ccagaacact attcaaccaa gtgatggaaa aggagtttga agacgacatc attactggg 360
gaagaattgt aaccatattt gcatttgaag gtattctcat caagaaactt ctacgacagc 420
aaattgcccc ggatgtggat acctataagg agatttcata ttttgttgcg gaggttcataa 480
tgaataacac aggagaatgg ataaggcaaa acggaggctg ggaaaatggc tttgtaaaaga 540
agtttgaacc taaatctggc tggatgactt ttctagaagt tacaggaaaag atctgtgaaa 600

```

tgctatctct cctgaagcaa tactgttgac cagaaaggac actccatatt gtgaaaccgg 660
cctaattttt ctgactgata tggaacgat tgccaacaca tacttctact tttaaataaa 720
caactttgat gatgtaactt gaccttccag agttatggaa attttgtccc catgtaatgg 780
aataaattgt atgt 794

<210> 12
<211> 175
<212> PRT
<213> Human

<400> 12
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20 25 30
Thr Ser Arg Val Leu Gln Asn Val Ala Phe Ser Val Gln Lys Glu Val
35 40 45
Glu Lys Asn Leu Lys Ser Cys Leu Asp Asn Val Asn Val Val Ser Val
50 55 60
Asp Thr Ala Arg Thr Leu Phe Asn Gln Val Met Glu Lys Glu Phe Glu
65 70 75 80
Asp Asp Ile Ile Asn Trp Gly Arg Ile Val Thr Ile Phe Ala Phe Glu
85 90 95
Gly Ile Leu Ile Lys Lys Leu Leu Arg Gln Gln Ile Ala Pro Asp Val
100 105 110
Asp Thr Tyr Lys Glu Ile Ser Tyr Phe Val Ala Glu Phe Ile Met Asn
115 120 125
Asn Thr Gly Glu Trp Ile Arg Gln Asn Gly Gly Trp Glu Asn Gly Phe
130 135 140
Val Lys Lys Phe Glu Pro Lys Ser Gly Trp Met Thr Phe Leu Glu Val
145 150 155 160
Thr Gly Lys Ile Cys Glu Met Leu Ser Leu Leu Lys Gln Tyr Cys
165 170 175

<210> 13
<211> 800
<212> DNA
<213> Human

<400> 13
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tcaggcagga gaaccaggct ctgctgccac cgagtcctta gccccaactc aacaaacctg 180
aaaggacatc atgtgaggct ctgtaaacca tgcaagcttg agccagagcc ccgccttttg 240
gtggtgcctg gggcactccc acaggtgtag cactcccaaa gcaagactcc agacagcgga 300
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cagcagttag ctgcaatgtt ggagggtctt atctcgggct gcaaggaccc tgggaaagtt 420
ccagaactcc acgtccttgt ctcaattgtg ccatcaactt tcagagctat catgagccaa 480
cctcacccca cagggcctca gtcgccacca tgtgggcctc tccagtgcac accaccgagc 540
attccacccat gaccggtcac agctacaaat ccagagacca tcaatcctgc tagagtgcag 600
ggtggcaagc acccaagggt ggctgaccaa gactgcagag tctcctccat cttcagggtc 660
attcagcctc ctggcattta actaccagca tccagtgggc cccaaggaat cccttcctag 720
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aaactcaaaa aaaaaaaaaa 800

<210> 14
 <211> 81
 <212> PRT
 <213> Human

<400> 14
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 Phe Ser Ile Phe Ser Thr Glu Gly Lys Arg Arg Pro Ala Lys Ala Trp
 20 25 30
 Ser Gly Arg Arg Thr Arg Leu Cys His Arg Val Pro Ser Pro Asn
 35 40 45
 Ser Thr Asn Leu Lys Gly His His Val Arg Leu Cys Lys Pro Cys Lys
 50 55 60
 Leu Glu Pro Glu Pro Arg Leu Trp Val Val Pro Gly Ala Leu Pro Gln
 65 70 75 80
 Val

<210> 15
 <211> 3169
 <212> DNA
 <213> Human

<400> 15
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 ctgtgcctgc tgcaccagtc aaatacttcc ttcattaagc tgaataataa tggctttgaa 120
 gatattgtca ttgttataga tcttagtggt ccagaagatg aaaaaataat tgaacaaata 180
 gaggatatgg tgactacagc ttctacgtac ctgtttgaag ccacagaaaa aagatttttt 240
 ttcaaaaatg tatctatatt aattcctgag aattggaagg aaaatcctca gtacaaaagg 300
 ccaaaacatg aaaaccataa acatgctgat gttatagttg caccacctac actcccagg 360
 agagatgaac catacaccaa gcagttcaca gaatgtggag agaaaggcga atacattcac 420
 ttcacccctg accttctact tggaaaaaaa caaatgaat atggaccacc aggcaactg 480
 tttgtccatg agtgggctca cctccgggtg ggagtgtttg atgagtacaa tgaagatcag 540
 cctttctacc gtgctaagtc aaaaaaaatc gaagcaacaa ggtgttccgc aggtatctct 600
 ggtagaaata gagtttataa gtgtcaagga ggcagctgtc ttagtagagc atgcagaatt 660
 gattctacaa caaaactgta tggaaaagat tgtcaattct ttctgataa agtacaacaa 720
 gaaaaagcat ccataatggt tatgcaaagt attgattctg ttgttgaatt ttgtaacgaa 780
 aaaacccata atcaagaagc tccaagccta caaaacataa agtgcaattt tagaagtaca 840
 tgggaggtga ttagcaattc tgaggatttt aaaaacacca taccatggt gacaccacct 900
 cctccacctg tcttctcatt gctgaagatc agtcaaagaa ttgtgtgctt agttcttgat 960
 aagtctggaa gcatgggggg taaggaccgc ctaaatcgaa tgaatcaagc agcaaaacat 1020
 ttctgctgct agactgttg aaatggatcc tgggtgggga tggttcactt tgatagtact 1080
 gccactattg taaataagct aatccaaata aaaagcagtg atgaaagaaa cacactcatg 1140
 gcaggattac ctacatatcc tctgggagga acttccatct gctctggaat taaatatgca 1200
 tttcaggtga ttggagagct acattcccaa ctcatggtg ccgaagtact gctgctgact 1260
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 gttcatttta ttgctttggg aagagctgct gatgaagcag taatagagat gagcaagata 1380
 acaggaggaa gtcattttta tgtttcagat gaagctcaga acaatggcct cattgatgct 1440
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 gtgggaaagg acacgttctt tctcatcaca tggaacagtc tgctcccag tatttctctc 1620
 tgggatccca gtggaacaat aatggaaaat ttcacagtgg atgcaacttc caaatggcc 1680

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|-----|-----|--|--|--|-----|-----|--|--|--|--|
| | | | | | | | | | | | | | | | 180 | | | | | 185 | | | | | 190 | | | | | |
| Gly | Arg | Asn | Arg | Val | Tyr | Lys | Cys | Gln | Gly | Gly | Ser | Cys | Leu | Ser | Arg | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Ala | Cys | Arg | Ile | Asp | Ser | Thr | Thr | Lys | Leu | Tyr | Gly | Lys | Asp | Cys | Gln | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 210 | | | | | 215 | | | | | 220 | | | | | |
| Phe | Phe | Pro | Asp | Lys | Val | Gln | Thr | Glu | Lys | Ala | Ser | Ile | Met | Phe | Met | | | | | | | | | | | | | | | |
| 225 | | | | | | | | | | | | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Gln | Ser | Ile | Asp | Ser | Val | Val | Glu | Phe | Cys | Asn | Glu | Lys | Thr | His | Asn | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Gln | Glu | Ala | Pro | Ser | Leu | Gln | Asn | Ile | Lys | Cys | Asn | Phe | Arg | Ser | Thr | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 260 | | | | | 265 | | | | | 270 | | | | | |
| Trp | Glu | Val | Ile | Ser | Asn | Ser | Glu | Asp | Phe | Lys | Asn | Thr | Ile | Pro | Met | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Val | Thr | Pro | Pro | Pro | Pro | Pro | Val | Phe | Ser | Leu | Leu | Lys | Ile | Ser | Gln | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 290 | | | | | 295 | | | | | 300 | | | | | |
| Arg | Ile | Val | Cys | Leu | Val | Leu | Asp | Lys | Ser | Gly | Ser | Met | Gly | Gly | Lys | | | | | | | | | | | | | | | |
| 305 | | | | | | | | | | | | | | | | 310 | | | | | 315 | | | | | 320 | | | | |
| Asp | Arg | Leu | Asn | Arg | Met | Asn | Gln | Ala | Ala | Lys | His | Phe | Leu | Leu | Gln | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 325 | | | | | 330 | | | | | 335 | | | | | |
| Thr | Val | Glu | Asn | Gly | Ser | Trp | Val | Gly | Met | Val | His | Phe | Asp | Ser | Thr | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 340 | | | | | 345 | | | | | 350 | | | | | |
| Ala | Thr | Ile | Val | Asn | Lys | Leu | Ile | Gln | Ile | Lys | Ser | Ser | Asp | Glu | Arg | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 355 | | | | | 360 | | | | | 365 | | | | | |
| Asn | Thr | Leu | Met | Ala | Gly | Leu | Pro | Thr | Tyr | Pro | Leu | Gly | Gly | Thr | Ser | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 370 | | | | | 375 | | | | | 380 | | | | | |
| Ile | Cys | Ser | Gly | Ile | Lys | Tyr | Ala | Phe | Gln | Val | Ile | Gly | Glu | Leu | His | | | | | | | | | | | | | | | |
| 385 | | | | | | | | | | | | | | | | 390 | | | | | 395 | | | | | 400 | | | | |
| Ser | Gln | Leu | Asp | Gly | Ser | Glu | Val | Leu | Leu | Leu | Thr | Asp | Gly | Glu | Asp | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 405 | | | | | 410 | | | | | 415 | | | | | |
| Asn | Thr | Ala | Ser | Ser | Cys | Ile | Asp | Glu | Val | Lys | Gln | Ser | Gly | Ala | Ile | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 420 | | | | | 425 | | | | | 430 | | | | | |
| Val | His | Phe | Ile | Ala | Leu | Gly | Arg | Ala | Ala | Asp | Glu | Ala | Val | Ile | Glu | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 435 | | | | | 440 | | | | | 445 | | | | | |
| Met | Ser | Lys | Ile | Thr | Gly | Gly | Ser | His | Phe | Tyr | Val | Ser | Asp | Glu | Ala | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 450 | | | | | 455 | | | | | 460 | | | | | |
| Gln | Asn | Asn | Gly | Leu | Ile | Asp | Ala | Phe | Gly | Ala | Leu | Thr | Ser | Gly | Asn | | | | | | | | | | | | | | | |
| 465 | | | | | | | | | | | | | | | | 470 | | | | | 475 | | | | | 480 | | | | |
| Thr | Asp | Leu | Ser | Gln | Lys | Ser | Leu | Gln | Leu | Glu | Ser | Lys | Gly | Leu | Thr | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 485 | | | | | 490 | | | | | 495 | | | | | |
| Leu | Asn | Ser | Asn | Ala | Trp | Met | Asn | Asp | Thr | Val | Ile | Ile | Asp | Ser | Thr | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 500 | | | | | 505 | | | | | 510 | | | | | |
| Val | Gly | Lys | Asp | Thr | Phe | Phe | Leu | Ile | Thr | Trp | Asn | Ser | Leu | Pro | Pro | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Ser | Ile | Ser | Leu | Trp | Asp | Pro | Ser | Gly | Thr | Ile | Met | Glu | Asn | Phe | Thr | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 530 | | | | | 535 | | | | | 540 | | | | | |
| Val | Asp | Ala | Thr | Ser | Lys | Met | Ala | Tyr | Leu | Ser | Ile | Pro | Gly | Thr | Ala | | | | | | | | | | | | | | | |
| 545 | | | | | | | | | | | | | | | | 550 | | | | | 555 | | | | | 560 | | | | |
| Lys | Val | Gly | Thr | Trp | Ala | Tyr | Asn | Leu | Gln | Ala | Lys | Ala | Asn | Pro | Glu | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 565 | | | | | 570 | | | | | 575 | | | | | |
| Thr | Leu | Thr | Ile | Thr | Val | Thr | Ser | Arg | Ala | Ala | Asn | Ser | Ser | Val | Pro | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 580 | | | | | 585 | | | | | 590 | | | | | |
| Pro | Ile | Thr | Val | Asn | Ala | Lys | Met | Asn | Lys | Asp | Val | Asn | Ser | Phe | | | | | | | | | | | | | | | | |

Leu Gly Ala Asn Val Thr Ala Phe Ile Glu Ser Gln Asn Gly His Thr
625 630 635 640
Glu Val Leu Glu Leu Asp Asn Gly Ala Gly Ala Asp Ser Phe Lys
645 650 655
Asn Asp Gly Val Tyr Ser Arg Tyr Phe Thr Ala Tyr Thr Glu Asn Gly
660 665 670
Arg Tyr Ser Leu Lys Val Arg Ala His Gly Gly Ala Asn Thr Ala Arg
675 680 685
Leu Lys Leu Arg Pro Pro Leu Asn Arg Ala Ala Tyr Ile Pro Gly Trp
690 695 700
Val Val Asn Gly Glu Ile Glu Ala Asn Pro Pro Arg Pro Glu Ile Asp
705 710 715 720
Glu Asp Thr Gln Thr Thr Leu Glu Asp Phe Ser Arg Thr Ala Ser Gly
725 730 735
Gly Ala Phe Val Val Ser Gln Val Pro Ser Leu Pro Leu Pro Asp Gln
740 745 750
Tyr Pro Pro Ser Gln Ile Thr Asp Leu Asp Ala Thr Val His Glu Asp
755 760 765
Lys Ile Ile Leu Thr Trp Thr Ala Pro Gly Asp Asn Phe Asp Val Gly
770 775 780
Lys Val Gln Arg Tyr Ile Ile Arg Ile Ser Ala Ser Ile Leu Asp Leu
785 790 795 800
Arg Asp Ser Phe Asp Asp Ala Leu Gln Val Asn Thr Thr Asp Leu Ser
805 810 815
Pro Lys Glu Ala Asn Ser Lys Glu Ser Phe Ala Phe Lys Pro Glu Asn
820 825 830
Ile Ser Glu Glu Asn Ala Thr His Ile Phe Ile Ala Ile Lys Ser Ile
835 840 845
Asp Lys Ser Asn Leu Thr Ser Lys Val Ser Asn Ile Ala Gln Val Thr
850 855 860
Leu Phe Ile Pro Gln Ala Asn Pro Asp Asp Ile Asp Pro Thr Pro Thr
865 870 875 880
Pro Thr Pro Thr Pro Asp Lys Ser His Asn Ser Gly Val Asn Ile Ser
885 890 895
Thr Leu Val Leu Ser Val Ile Gly Ser Val Val Ile Val Asn Phe Ile
900 905 910
Leu Ser Thr Thr Ile
915

<210> 17
<211> 737
<212> DNA
<213> Human

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gacctgcccc gtgcacattg tgagaactgg aagtttccag ggggctgctt tgcattctgaa 120
actgtcagcc ccagaatggt gacagtcgct ctctagccc ttctctgtgc ctcagcctct 180
ggcaatgcc ttcaggccag gtcttcctcc tatagtggag agtatggaag tgggtggtgga 240
aagcgattct ctattcttg caaccagttg gacggcccca tcaccgccct ccgggtccga 300
gtcaacacat actacatcgt aggtcttcag gtgcgctatg gcaaggtgtg gagcgactat 360
gtgggtggtc gcaacggaga cctggaggag atctttctgc accctgggga atcagtgatc 420
caggtttctg ggaagtacaa gtggtacctg aagaagctgg tatttgtgac agacaagggc 480
cgctatctgt cttttgggaa agacagtggc acaagtttca atgccgtccc cttgcacccc 540

aacaccgtgc tccgcttcat cagtggccgg tctggttctc tcatcgatgc cattggcctg 600
 cactgggatg tttacccac tagctgcagc agatgctgag cctcctctcc ttggcagggg 660
 cactgtgatg aggagtaaga actcccttat cactaacccc catccaaatg gctcaataaa 720
 aaaatatggt taaggct 737

<210> 18
 <211> 198
 <212> PRT
 <213> Human

<400> 18
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 Lys Phe Pro Gly Cys Phe Ala Ser Glu Thr Val Ser Pro Arg Met
 20 25 30
 Leu Thr Val Ala Leu Leu Ala Leu Leu Cys Ala Ser Ala Ser Gly Asn
 35 40 45
 Ala Ile Gln Ala Arg Ser Ser Tyr Ser Gly Glu Tyr Gly Ser Gly
 50 55 60
 Gly Gly Lys Arg Phe Ser His Ser Gly Asn Gln Leu Asp Gly Pro Ile
 65 70 75 80
 Thr Ala Leu Arg Val Arg Val Asn Thr Tyr Tyr Ile Val Gly Leu Gln
 85 90 95
 Val Arg Tyr Gly Lys Val Trp Ser Asp Tyr Val Gly Gly Arg Asn Gly
 100 105 110
 Asp Leu Glu Glu Ile Phe Leu His Pro Gly Glu Ser Val Ile Gln Val
 115 120 125
 Ser Gly Lys Tyr Lys Trp Tyr Leu Lys Lys Leu Val Phe Val Thr Asp
 130 135 140
 Lys Gly Arg Tyr Leu Ser Phe Gly Lys Asp Ser Gly Thr Ser Phe Asn
 145 150 155 160
 Ala Val Pro Leu His Pro Asn Thr Val Leu Arg Phe Ile Ser Gly Arg
 165 170 175
 Ser Gly Ser Leu Ile Asp Ala Ile Gly Leu His Trp Asp Val Tyr Pro
 180 185 190
 Thr Ser Cys Ser Arg Cys
 195

<210> 19
 <211> 2879
 <212> DNA
 <213> Human

<400> 19
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 aagaagtgtt caccacatag ttgcaaaggc cttcaacttg ccacagccaa cagaaaaatc 180
 aaaatgattg aacccttttg gaatcagtat attgtggcca ggccagtgtg ttctacaaat 240
 gcttttgagg aaaatcataa aaagacagga agacatcata agacatttct ggatcatctc 300
 aaagtgtgtt gtagctgttc cccacaaaag gccaaagaa ttgtcctctc tttgttcccc 360
 atagcatctt gggtgccagc ataccggctt aaagaatggt tgctcagtga tattgtttct 420
 ggtatcagca cagggattgt ggccgtacta caaggtttag catttgctct gctggctcgc 480
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 ggcacttcca gacacatata cgtgggtccg tttccgattc tgagtatgat ggtgggacta 600

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|-------------|------|
| gcagtttcag | gagcagtttc | aaaagcagtc | ccagatcgca | atgcaactac | tttgggattg | 660 |
| cctaacaact | cgaataattc | ttcactactg | gatgacgaga | gggtgagggg | ggcgggcgcg | 720 |
| gcatacagtc | cagtgctttc | tggaaatcac | cagttggcct | ttgggattct | gcggtattgga | 780 |
| tttgtagtga | tatacctgtc | tgagtccctc | atcagtggtc | tactactgc | tgctgctgtt | 840 |
| catgttttgg | tttcccaact | caaatttcatt | tttcagttga | cagtcgccgc | acacactgat | 900 |
| ccagtttcaa | ttttcaaagt | actatactct | gtattctcac | aaatagagaa | gactaatatt | 960 |
| gcagacctgg | tgacagctct | gattgtcctt | ttggttgat | ccattgttaa | agaaataaat | 1020 |
| cagcgcttca | aagacaaact | tccagtgccc | attccaatcg | aattcattat | gaccgtgatt | 1080 |
| gcagcagggt | tatcctacgg | ctgtgacttt | aaaaacagg | ttaaagtggc | tgtgggtggg | 1140 |
| gacatgaatc | ctggatttca | gccccctatt | acacctgacg | tggagacttt | ccaaaacacc | 1200 |
| gtaggagatt | gcttcggcat | cgcaatgggt | gcatttgacg | tggccttttc | agttgccagc | 1260 |
| gtctattccc | tcaaatacga | ttatccactt | gatggcaatc | aggagttaat | agccttgggg | 1320 |
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| atcgtgctga | ttgtcgttct | agccatttga | tttctcctgg | cgcctctaca | aaagtccgtc | 1500 |
| ctggcagctt | tagcattggg | aaacttaaa | ggaatgctga | tgcagtttgc | tgaaataggc | 1560 |
| agatttgtggc | gaaaggacaa | atatgattgt | ttaatttggg | tcatgacctt | catcttcacc | 1620 |
| attgtcctgg | gactcgggtt | aggcctggca | gctagtgtgg | catttcaact | gctaaccatc | 1680 |
| gtgttcagga | cccaatttcc | aaaatgcagc | acgctggcta | atatttgaag | aaccaacatc | 1740 |
| tataagaata | aaaaagatta | ttatgatatg | tatgagccag | aaggagtga | aattttcaga | 1800 |
| tgtccatctc | ctaatctactt | tgcaaacatt | ggtttcttta | ggcggaact | tatcgatgct | 1860 |
| gttggcttta | gtccacttcg | aattctacgc | aagcgcaaca | aagctttgag | gaaaatccga | 1920 |
| aaactgcaga | agcaaggctt | gctacaagtg | acacccaaa | gatttatatg | tactgttgac | 1980 |
| accataaaa | attctgacga | agagctggac | aacaatcaga | tagaagtact | ggaccagcca | 2040 |
| atcaatacca | cagacctgcc | tttccacatt | gactggaatg | atgatcttcc | tctcaacatt | 2100 |
| gaggtcccca | aaatcagcct | ccacagcctc | attctcgact | tttcagcagt | gtcctttctt | 2160 |
| gatgtttctt | cagtgagggg | ccttaaatcg | attttgcaag | aatttatcag | gatcaaggta | 2220 |
| gttggtgata | tcgttggaac | tgatgatgac | ttcattgaga | agcttaaccg | gtatgaattt | 2280 |
| tttgatggtg | aagtgaagaa | ctcaatattt | ttcttaacaa | tccatgatgc | tgttttgcat | 2340 |
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| gttgaacaa | aattctaata | aacatataat | tcagaaggat | cttcacttga | ctatgacata | 2520 |
| aaaacaactt | tataccaga | aagttattga | taagttcata | cattgtacga | agagtatttt | 2580 |
| tgacagaata | tgtttcaaac | tttgaacaa | gatggttcta | gcattggcata | tttttcacat | 2640 |
| atctagtatg | aaattatata | agtattctaa | attttatatc | ttgtagcttt | atcaaagggg | 2700 |
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| ccttcattgca | taggttttagc | agtatagtgg | cgccactgtt | ttgaatctca | taattttatac | 2820 |
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- 16 -

10003606.1101

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| Ile | Ser | Thr | Gly | Ile | Val | Ala | Val | Leu | Gln | Gly | Leu | Ala | Phe | Ala | Leu | 85 | 90 | 95 |
| Leu | Val | Asp | Ile | Pro | Pro | Val | Tyr | Gly | Leu | Tyr | Ala | Ser | Phe | Phe | Pro | 100 | 105 | 110 |
| Ala | Ile | Ile | Tyr | Leu | Phe | Phe | Gly | Thr | Ser | Arg | His | Ile | Ser | Val | Gly | 115 | 120 | 125 |
| Pro | Phe | Pro | Ile | Leu | Ser | Met | Met | Val | Gly | Leu | Ala | Val | Ser | Gly | Ala | 130 | 135 | 140 |
| Val | Ser | Lys | Ala | Val | Pro | Asp | Arg | Asn | Ala | Thr | Thr | Leu | Gly | Leu | Pro | 145 | 150 | 155 |
| Asn | Asn | Ser | Asn | Asn | Ser | Ser | Leu | Leu | Asp | Asp | Glu | Arg | Val | Arg | Val | 165 | 170 | 175 |
| Ala | Ala | Ala | Ala | Ser | Val | Thr | Val | Leu | Ser | Gly | Ile | Ile | Gln | Leu | Ala | 180 | 185 | 190 |
| Phe | Gly | Ile | Leu | Arg | Ile | Gly | Phe | Val | Val | Ile | Tyr | Leu | Ser | Glu | Ser | 195 | 200 | 205 |
| Leu | Ile | Ser | Gly | Phe | Thr | Thr | Ala | Ala | Ala | Val | His | Val | Leu | Val | Ser | 210 | 215 | 220 |
| Gln | Leu | Lys | Phe | Ile | Phe | Gln | Leu | Thr | Val | Pro | Ser | His | Thr | Asp | Pro | 225 | 230 | 235 |
| Val | Ser | Ile | Phe | Lys | Val | Leu | Tyr | Ser | Val | Phe | Ser | Gln | Ile | Glu | Lys | 245 | 250 | 255 |
| Thr | Asn | Ile | Ala | Asp | Leu | Val | Thr | Ala | Leu | Ile | Val | Leu | Leu | Val | Val | 260 | 265 | 270 |
| Ser | Ile | Val | Lys | Glu | Ile | Asn | Gln | Arg | Phe | Lys | Asp | Lys | Leu | Pro | Val | 275 | 280 | 285 |
| Pro | Ile | Pro | Ile | Glu | Phe | Ile | Met | Thr | Val | Ile | Ala | Ala | Gly | Val | Ser | 290 | 295 | 300 |
| Tyr | Gly | Cys | Asp | Phe | Lys | Asn | Arg | Phe | Lys | Val | Ala | Val | Val | Gly | Asp | 305 | 310 | 315 |
| Met | Asn | Pro | Gly | Phe | Gln | Pro | Pro | Ile | Thr | Pro | Asp | Val | Glu | Thr | Phe | 325 | 330 | 335 |
| Gln | Asn | Thr | Val | Gly | Asp | Cys | Phe | Gly | Ile | Ala | Met | Val | Ala | Phe | Ala | 340 | 345 | 350 |
| Val | Ala | Phe | Ser | Val | Ala | Ser | Val | Tyr | Ser | Leu | Lys | Tyr | Asp | Tyr | Pro | 355 | 360 | 365 |
| Leu | Asp | Gly | Asn | Gln | Glu | Leu | Ile | Ala | Leu | Gly | Leu | Gly | Asn | Ile | Val | 370 | 375 | 380 |
| Cys | Gly | Val | Phe | Arg | Gly | Phe | Ala | Gly | Ser | Thr | Ala | Leu | Ser | Arg | Ser | 385 | 390 | 395 |
| Ala | Val | Gln | Glu | Ser | Thr | Gly | Gly | Lys | Thr | Gln | Ile | Ala | Gly | Leu | Ile | 405 | 410 | 415 |
| Gly | Ala | Ile | Ile | Val | Leu | Ile | Val | Val | Leu | Ala | Ile | Gly | Phe | Leu | Leu | 420 | 425 | 430 |
| Ala | Pro | Leu | Gln | Lys | Ser | Val | Leu | Ala | Ala | Leu | Ala | Leu | Gly | Asn | Leu | 435 | 440 | 445 |
| Lys | Gly | Met | Leu | Met | Gln | Phe | Ala | Glu | Ile | Gly | Arg | Leu | Trp | Arg | Lys | 450 | 455 | 460 |
| Asp | Lys | Tyr | Asp | Cys | Leu | Ile | Trp | Ile | Met | Thr | Phe | Ile | Phe | Thr | Ile | 465 | 470 | 475 |
| Val | Leu | Gly | Leu | Gly | Leu | Gly | Leu | Ala | Ala | Ser | Val | Ala | Phe | Gln | Leu | 485 | 490 | 495 |
| Leu | Thr | Ile | Val | Phe | Arg | Thr | Gln | Phe | Pro | Lys | Cys | Ser | Thr | Leu | Ala | 500 | 505 | 510 |
| Asn | Ile | Gly | Arg | Thr | Asn | Ile | Tyr | Lys | Asn | Lys | Lys | Asp | Tyr | Tyr | Asp | | | |

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 35 40 45
 Arg Val Gly Lys Leu Arg Asn Phe Ala Pro Ile Pro Gly Glu Pro Val
 50 55 60
 Val Pro Ile Leu Cys Ser Asn Pro Asn Phe Pro Glu Glu Leu Lys Pro
 65 70 75 80
 Leu Cys Lys Glu Pro Asn Ala Gln Glu Ile Leu Gln Arg Leu Glu Glu
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 Thr Gly Cys
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 gaagataatg gcaagtccag actggggata tgatgacaaa aatggtcctg aacaatggag 180
 caagctgtat cccattgccca atggaaaataa ccagtcacct gttgatatta aaaccagtga 240
 aaccaaacat gacacctctc tgaaacctat tagtgtctcc tacaaccag ccacagccaa 300
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<211> 261

<212> PRT

<213> Human

<400> 24

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| Trp Ser Lys | Leu Tyr Pro Ile Ala Asn Gly Asn Asn Gln Ser Pro Val | | |
| | 20 | 25 | 30 |
| Asp Ile Lys | Thr Ser Glu Thr Lys His Asp Thr Ser Leu Lys Pro Ile | | |
| | 35 | 40 | 45 |
| Ser Val Ser | Tyr Asn Pro Ala Thr Ala Lys Glu Ile Ile Asn Val Gly | | |
| | 50 | 55 | 60 |
| His Ser Phe | His Val Asn Phe Glu Asp Asn Asp Asn Arg Ser Val Leu | | |
| | 65 | 70 | 75 |
| Lys Gly Gly | Pro Phe Ser Asp Ser Tyr Arg Leu Phe Gln Phe His Phe | | |
| | 85 | 90 | 95 |
| His Trp Gly | Ser Thr Asn Glu His Gly Ser Glu His Thr Val Asp Gly | | |
| | 100 | 105 | 110 |
| Val Lys Tyr | Ser Ala Glu Leu His Val Ala His Trp Asn Ser Ala Lys | | |
| | 115 | 120 | 125 |
| Tyr Ser Ser | Leu Ala Glu Ala Ala Ser Lys Ala Asp Gly Leu Ala Val | | |
| | 130 | 135 | 140 |
| Ile Gly Val | Leu Met Lys Val Gly Glu Ala Asn Pro Lys Leu Gln Lys | | |
| | 145 | 150 | 155 |
| Val Leu Asp | Ala Leu Gln Ala Ile Lys Thr Lys Gly Lys Arg Ala Pro | | |
| | 165 | 170 | 175 |
| Phe Thr Asn | Phe Asp Pro Ser Thr Leu Leu Pro Ser Ser Leu Asp Phe | | |
| | 180 | 185 | 190 |
| Trp Thr Tyr | Pro Gly Ser Leu Thr His Pro Pro Leu Tyr Glu Ser Val | | |
| | 195 | 200 | 205 |
| Thr Trp Ile | Ile Cys Lys Glu Ser Ile Ser Val Ser Ser Glu Gln Leu | | |
| | 210 | 215 | 220 |
| Ala Gln Phe | Arg Ser Leu Leu Ser Asn Val Glu Gly Asp Asn Ala Val | | |
| | 225 | 230 | 235 |
| Pro Met Gln | His Asn Asn Arg Pro Thr Gln Pro Leu Lys Gly Arg Thr | | |
| | 245 | 250 | 255 |
| Val Arg Ala | Ser Phe | | |
| | 260 | | |

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 aatggctatg aaggcattgt cggtgcaatc gaccccaatg tgccagaaga tgaaacactc 180
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 aataatgatg agaaattcta cttatccaat ggaagaatac aagcagtaag atgttcagca 600
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| | | | | | | |
|-------------|------------|------------|-------------|-------------|-------------|------|
| cgaagcacat | gggaagtgat | ccgtgattct | gaggacttta | agaaaaccac | tcctatgaca | 900 |
| acacagccac | caaatcccac | cttctcattg | ctgcagattg | gacaaaagaat | tgtgtgttta | 960 |
| gtccttgaca | aatctggaag | cttggcgact | ggtaaccgcc | tcaatcgact | gaatcaagca | 1020 |
| ggccagcttt | tcttgctgca | gacagttgag | ctggggctct | gggttgggat | ggtgacattt | 1080 |
| gacagtgtg | cccatgtaca | aagtgaactc | atacagataa | acagtggcag | tgacagggac | 1140 |
| acactcgcca | aaagattacc | tgcagcagct | tcaggaggga | cgtccatctg | cagcgggctt | 1200 |
| cgatcggcat | ttactgtgat | taggaagaaa | tatccaactg | atggatctga | aattgtgtctg | 1260 |
| ctgacggatg | gggaagacaa | cactataagt | gggtgcttta | acgaggtcaa | acaaagtggg | 1320 |
| gccatcatcc | acacagtcgc | tttggggccc | tctgcagctc | aagaactaga | ggagctgtcc | 1380 |
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| ccaattacag | tgacttccaa | aacgaacaag | gacaccgaca | aattcccag | ccctctggta | 1860 |
| gtttatgcaa | atattcgcca | aggagcctcc | ccaattctca | gggccagtgt | cacagccctg | 1920 |
| attgaatcag | tgaatggaag | aacagttacc | ttggaactac | tggataatgg | agcaggtgct | 1980 |
| gatgctacta | aggatgacgg | tgtctactca | aggattttca | caacttatga | cacgaatggt | 2040 |
| agatacagtg | taaaagtgcg | ggctctggga | ggagttaacg | cagccagacg | gagagtgata | 2100 |
| ccccagcaga | gtggagcact | gtacatacct | ggctggattg | agaatgatga | aatacaatgg | 2160 |
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| ctcttcccac | ctggccaaat | caccgacctg | aaggcggaaa | ttcacggggg | cagtctcatt | 2340 |
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| attcgaataa | gtacaagtat | tcttgatctc | agagacaagt | tcaatgaatc | tcttcaagt | 2460 |
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| taaaaactat | ccattcaaac | ccaaaaat | aataatcatt | gagtctttta | ttaatgaatt | 3060 |
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<211> 914
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| Glu | Gly | Ala | Leu | Ser | Asn | Ser | Leu | Ile | Gln | Leu | Asn | Asn | Asn | Gly | Tyr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Gly | Ile | Val | Val | Ala | Ile | Asp | Pro | Asn | Val | Pro | Glu | Asp | Glu | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Ile | Gln | Gln | Ile | Lys | Asp | Met | Val | Thr | Gln | Ala | Ser | Leu | Tyr | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Glu | Ala | Thr | Gly | Lys | Arg | Phe | Tyr | Phe | Lys | Asn | Val | Ala | Ile | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Pro | Glu | Thr | Trp | Lys | Thr | Lys | Ala | Asp | Tyr | Val | Arg | Pro | Lys | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Thr | Tyr | Lys | Asn | Ala | Asp | Val | Leu | Val | Ala | Glu | Ser | Thr | Pro | Pro |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Asn | Asp | Glu | Pro | Tyr | Thr | Glu | Gln | Met | Gly | Asn | Cys | Gly | Glu | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Glu | Arg | Ile | His | Leu | Thr | Pro | Asp | Phe | Ile | Ala | Gly | Lys | Lys | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Glu | Tyr | Gly | Pro | Gln | Gly | Arg | Ala | Phe | Val | His | Glu | Trp | Ala | His |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Arg | Trp | Gly | Val | Phe | Asp | Glu | Tyr | Asn | Asn | Asp | Glu | Lys | Phe | Tyr |
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| Leu | Ser | Asn | Gly | Arg | Ile | Gln | Ala | Val | Arg | Cys | Ser | Ala | Gly | Ile | Thr |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Gly | Thr | Asn | Val | Val | Lys | Lys | Cys | Gln | Gly | Gly | Ser | Cys | Tyr | Thr | Lys |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Arg | Cys | Thr | Phe | Asn | Lys | Val | Thr | Gly | Leu | Tyr | Glu | Lys | Gly | Cys | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Val | Leu | Gln | Ser | Arg | Gln | Thr | Glu | Lys | Ala | Ser | Ile | Met | Phe | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gln | His | Val | Asp | Ser | Ile | Val | Glu | Phe | Cys | Thr | Glu | Gln | Asn | His | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Glu | Ala | Pro | Asn | Lys | Gln | Asn | Gln | Lys | Cys | Asn | Leu | Arg | Ser | Thr |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Trp | Glu | Val | Ile | Arg | Asp | Ser | Glu | Asp | Phe | Lys | Lys | Thr | Thr | Pro | Met |
| | | 275 | | | | | 280 | | | | | | 285 | | |
| Thr | Thr | Gln | Pro | Pro | Asn | Pro | Thr | Phe | Ser | Leu | Leu | Gln | Ile | Gly | Gln |
| | 290 | | | | | 295 | | | | | | 300 | | | |
| Arg | Ile | Val | Cys | Leu | Val | Leu | Asp | Lys | Ser | Gly | Ser | Met | Ala | Thr | Gly |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asn | Arg | Leu | Asn | Arg | Leu | Asn | Gln | Ala | Gly | Gln | Leu | Phe | Leu | Leu | Gln |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Val | Glu | Leu | Gly | Ser | Trp | Val | Gly | Met | Val | Thr | Phe | Asp | Ser | Ala |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Ala | His | Val | Gln | Ser | Glu | Leu | Ile | Gln | Ile | Asn | Ser | Gly | Ser | Asp | Arg |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asp | Thr | Leu | Ala | Lys | Arg | Leu | Pro | Ala | Ala | Ala | Ser | Gly | Gly | Thr | Ser |
| | 370 | | | | | 375 | | | | | | 380 | | | |
| Ile | Cys | Ser | Gly | Leu | Arg | Ser | Ala | Phe | Thr | Val | Ile | Arg | Lys | Lys | Tyr |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Pro | Thr | Asp | Gly | Ser | Glu | Ile | Val | Leu | Leu | Thr | Asp | Gly | Glu | Asp | Asn |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Thr | Ile | Ser | Gly | Cys | Phe | Asn | Glu | Val | Lys | Gln | Ser | Gly | Ala | Ile | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| His | Thr | Val | Ala | Leu | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | 515 | | | | | 520 | | | | | | 525 | | | | | | | |
| Ile | Leu | Leu | Trp | Asp | Pro | Ser | Gly | Gln | Lys | Gln | Gly | Gly | Phe | Val | Val | | | | |
| | 530 | | | | | 535 | | | | | | 540 | | | | | | | |
| Asp | Lys | Asn | Thr | Lys | Met | Ala | Tyr | Leu | Gln | Ile | Pro | Gly | Ile | Ala | Lys | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | | | |
| Val | Gly | Thr | Trp | Lys | Tyr | Ser | Leu | Gln | Ala | Ser | Ser | Gln | Thr | Leu | Thr | | | | |
| | | | | 565 | | | | | 570 | | | | | | 575 | | | | |
| Leu | Thr | Val | Thr | Ser | Arg | Ala | Ser | Asn | Ala | Thr | Leu | Pro | Pro | Ile | Thr | | | | |
| | | | 580 | | | | | 585 | | | | | | 590 | | | | | |
| Val | Thr | Ser | Lys | Thr | Asn | Lys | Asp | Thr | Ser | Lys | Phe | Pro | Ser | Pro | Leu | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Val | Val | Tyr | Ala | Asn | Ile | Arg | Gln | Gly | Ala | Ser | Pro | Ile | Leu | Arg | Ala | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Ser | Val | Thr | Ala | Leu | Ile | Glu | Ser | Val | Asn | Gly | Lys | Thr | Val | Thr | Leu | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Glu | Leu | Leu | Asp | Asn | Gly | Ala | Gly | Ala | Asp | Ala | Thr | Lys | Asp | Asp | Gly | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |
| Val | Tyr | Ser | Arg | Tyr | Phe | Thr | Thr | Tyr | Asp | Thr | Asn | Gly | Arg | Tyr | Ser | | | | |
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| Val | Lys | Val | Arg | Ala | Leu | Gly | Gly | Val | Asn | Ala | Ala | Arg | Arg | Arg | Val | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | |
| Ile | Pro | Gln | Gln | Ser | Gly | Ala | Leu | Tyr | Ile | Pro | Gly | Trp | Ile | Glu | Asn | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | |
| Asp | Glu | Ile | Gln | Trp | Asn | Pro | Pro | Arg | Pro | Glu | Ile | Asn | Lys | Asp | Asp | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | 720 | | | | | |
| Val | Gln | His | Lys | Gln | Val | Cys | Phe | Ser | Arg | Thr | Ser | Ser | Gly | Gly | Ser | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Phe | Val | Ala | Ser | Asp | Val | Pro | Asn | Ala | Pro | Ile | Pro | Asp | Leu | Phe | Pro | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | |
| Pro | Gly | Gln | Ile | Thr | Asp | Leu | Lys | Ala | Glu | Ile | His | Gly | Gly | Ser | Leu | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Ile | Asn | Leu | Thr | Trp | Thr | Ala | Pro | Gly | Asp | Asp | Tyr | Asp | His | Gly | Thr | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | |
| Ala | His | Lys | Tyr | Ile | Ile | Arg | Ile | Ser | Thr | Ser | Ile | Leu | Asp | Leu | Arg | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
| Asp | Lys | Phe | Asn | Glu | Ser | Leu | Gln | Val | Asn | Thr | Thr | Ala | Leu | Ile | Pro | | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | | |
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- 23 -

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